

2016

Scanning Electron Microscopy (SEM) Portfolio 2016

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Recommended Citation

Shah, Jyotika, "Scanning Electron Microscopy (SEM) Portfolio 2016" (2016). *N.C. Brown Center for Ultrastructure Studies*. 5.
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Scanning Electron Microscopy Laboratory Portfolio

Jyotika Shah
7th December 2016

Submitted for
MCR 484/783 Scanning Electron Microscopy
Fall 2016
N.C. Brown Center for Ultrastructure Studies



State University of New York
College of Environmental Science and Forestry

These images were prepared as part of the class MCR 484 Scanning Electron Microscopy at SUNY College of Environmental Science and Forestry, Fall 2016,

All images were acquired on the JEOL JSM 5800 LV Scanning Electron Microscope in the N. C. Brown Center for Ultrastructure Studies

NAME: Jyotika Shah

Major: Environmental Science

Minor: Microscopy

Career Goals: Research using bioimaging

The images found in this collection are examples of the knowledge and skills I have developed through the MCR 484 Scanning Electron Microscopy course taken in the fall Of 2016.

I took this course because I'm interested in learning about the vast applications of the various forms of electron microscopy.

Table of Contents

I images I am presenting in this collection were chosen because they exemplify the knowledge and skills I have developed along with the care, quality, and concern for the work I produce.

Description

1. Image of a structure on a Mushroom
2. Image of pores on an insect egg
3. Image of a structure on a wood sample

Legend

- WD -> Working Distance
- OA -> Objective Aperture
- SS -> Spot Size

Figure 1. and 2. SEM micrographs of structures on a mushroom

This image was the most difficult to capture. The structures were found on the surface of the section of a mushroom. Due to the narrow area of the projections (see figure 2.) there was a significant amount of charge buildup on them. There was a lot of complex texture on the surface of this sample. A low mag image is provided for more context.

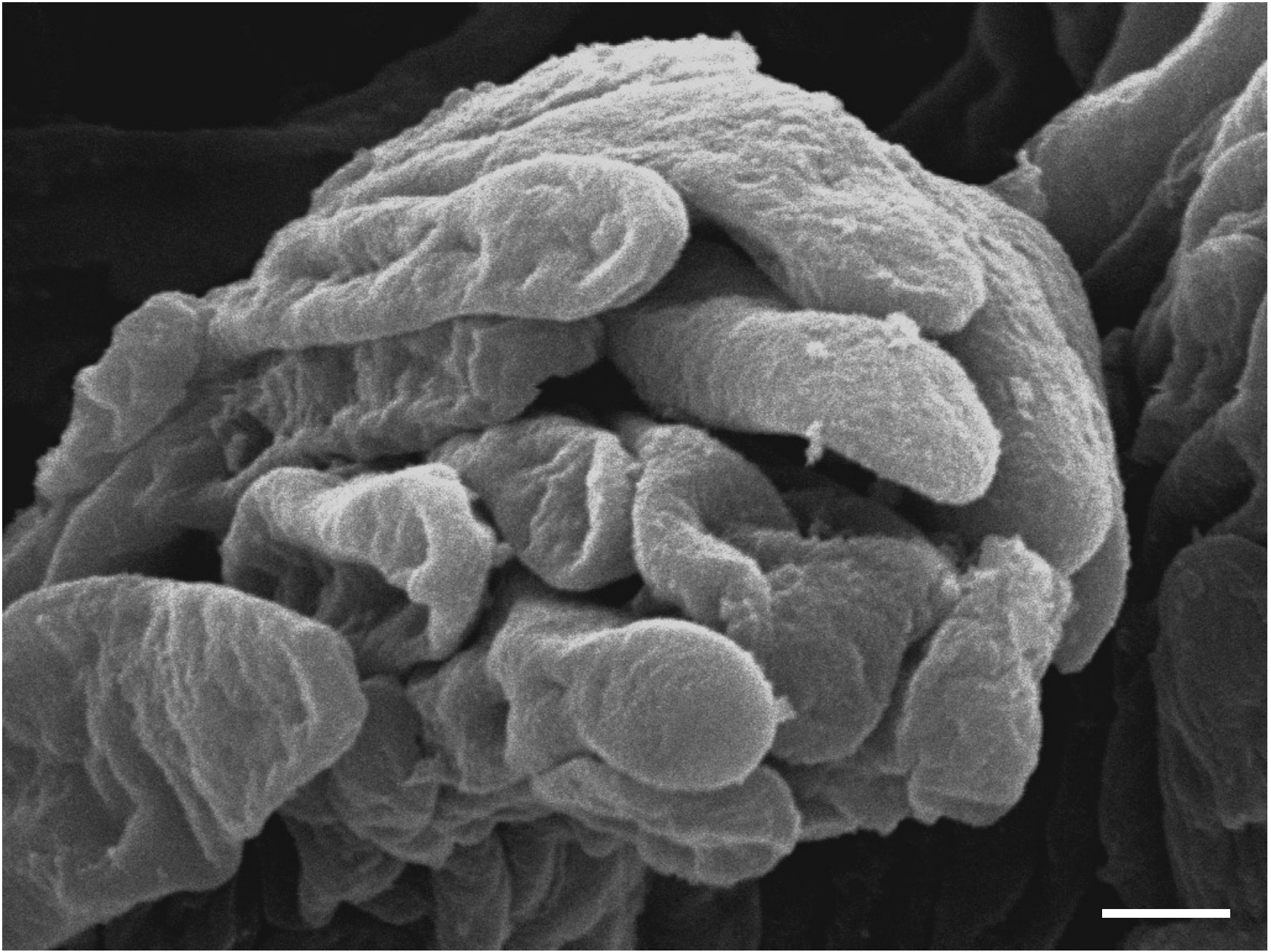


Figure 1. Scanning electron micrograph of a mushroom at a magnification of 7000X, WD 29, OA 1, SS9 and 15 kV accelerating voltage. Micron bar is 2 μ m. Sample prepared by fixation , critical point drying and metal coating.

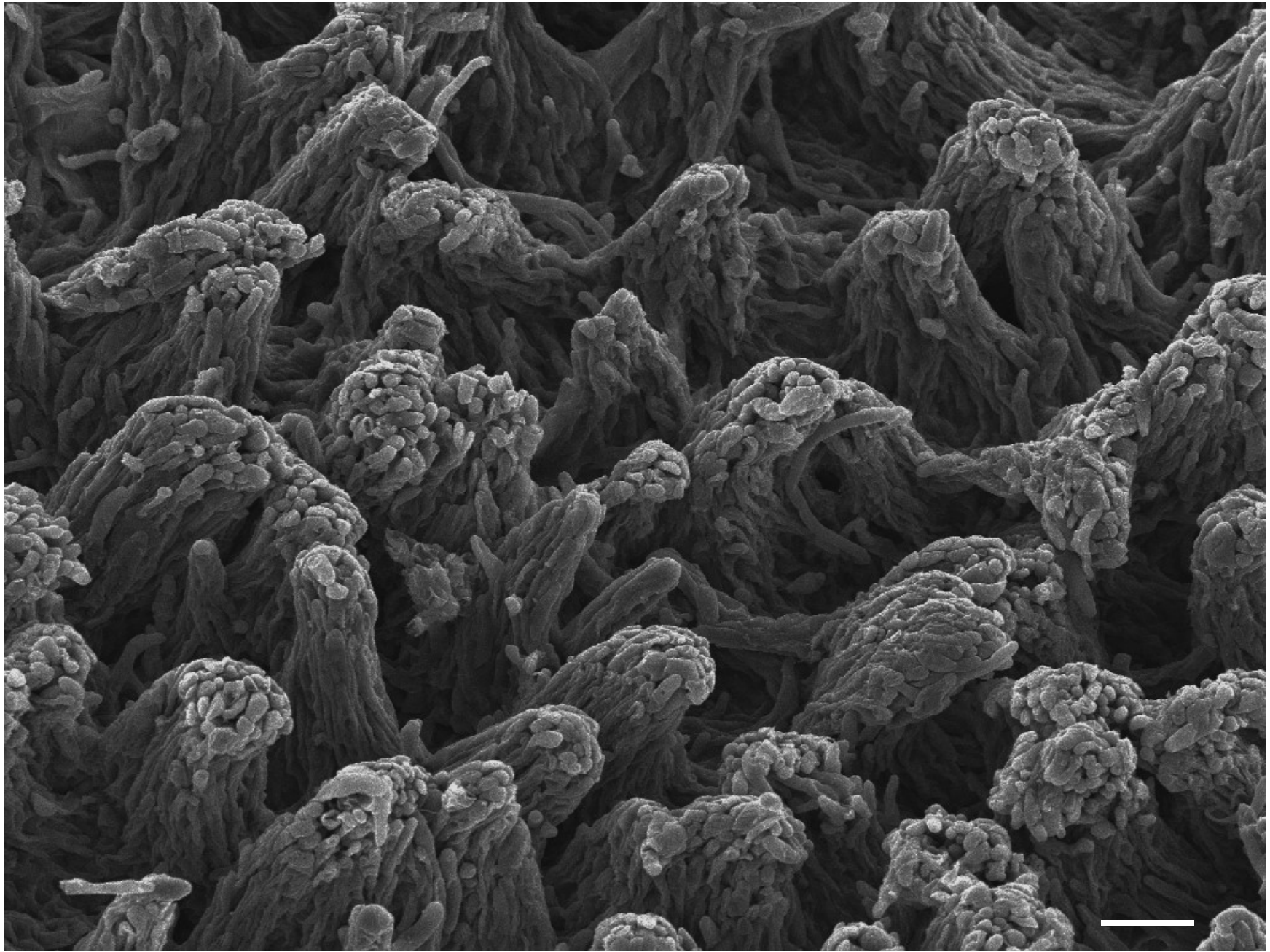


Figure 2. Scanning electron micrograph of the mushroom at a low mag of 500X, WD 29, OA 1, SS9 and 15 kV accelerating voltage. Micron bar is 20 μ m. Sample prepared by fixation , critical point drying and metal coating.

Figure 3 and 4: SEM micrographs of pores on an insect egg

The sample was a maple leaf with insect eggs on it. They showed an interesting pattern on the surface. The higher magnification shows the distinct pores on its surface and the low mag image of a whole egg is provided for context. This image was my most preferred one.

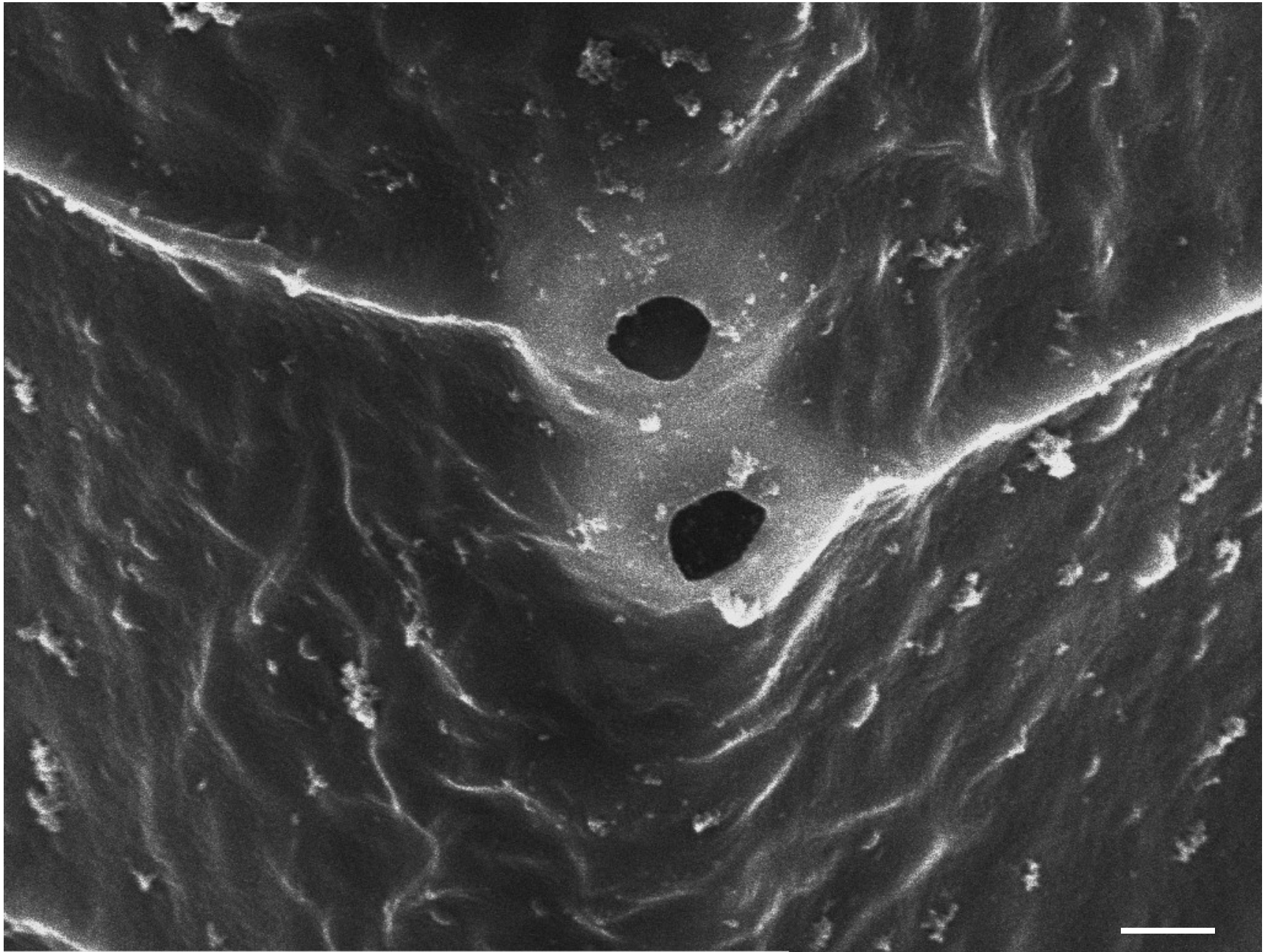


Figure 3. Scanning electron micrograph of pores on an insect egg found on a maple leaf at a magnification of 5000X, WD 29, OA 1, SS9 and 15 kV accelerating voltage. Micron bar is 2 μ m. Sample prepared by fixation , critical point drying and metal coating.

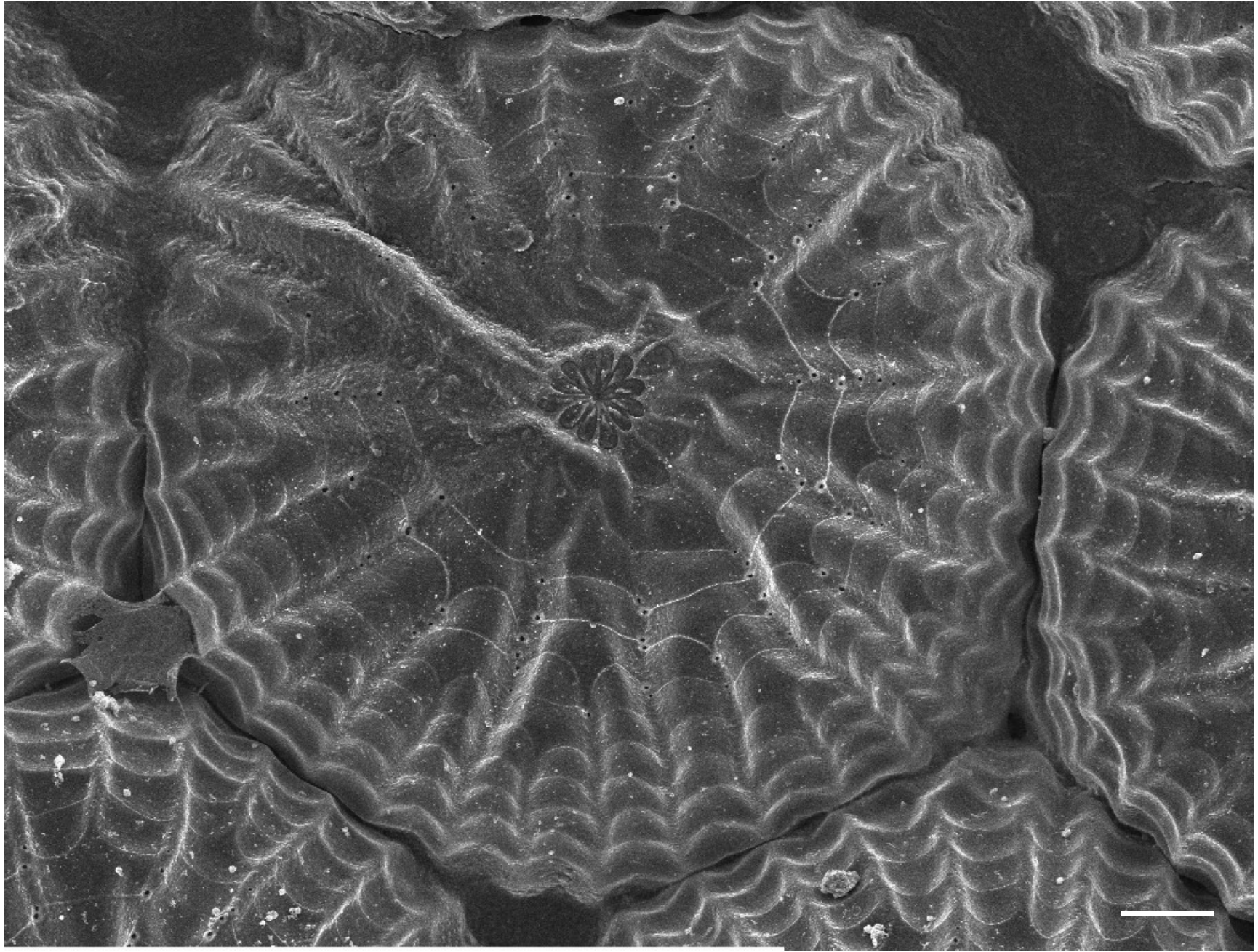


Figure 4. Scanning electron micrograph of the insect eggs on a maple leaf at a low magnification of 200X, WD 29, OA 1, SS9 and 15 kV accelerating voltage. Micron bar is 50 μ m. Sample prepared by fixation , critical point drying and metal coating.

Figure 5 and 6: SEM micrograph of a wood sample

This is an image of a sample of wood that was obtained from an unusual growth on a tree. These spherical structures were found throughout the sample and could be indicative of some sort of parasite. I felt this image was my best work, it is at the highest magnification. Once again, a low mag image is available for some context.

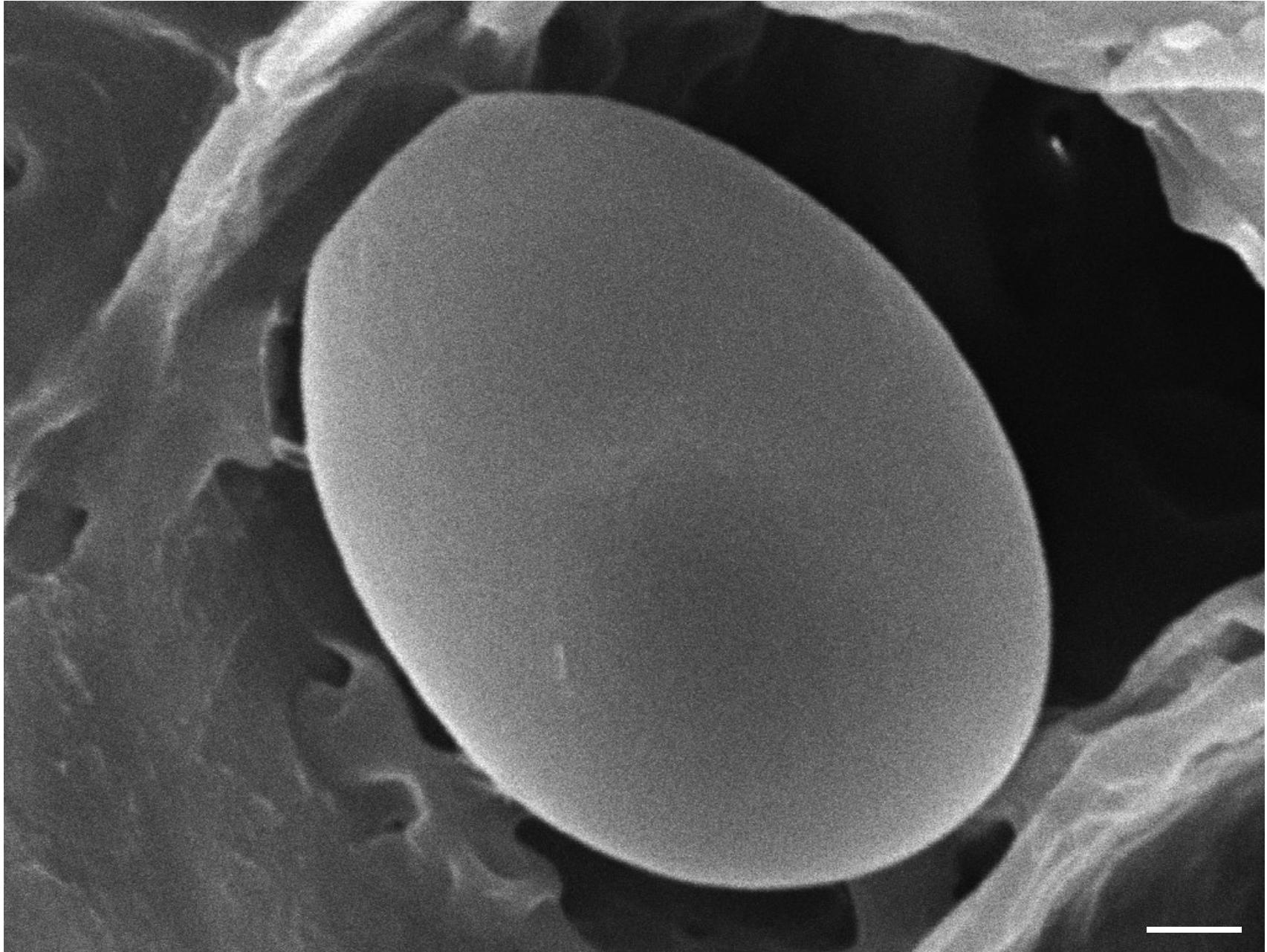


Figure 5. Scanning electron micrograph of a spherical structure on a wood sample at a magnification of 10,000X, WD 29, OA 1, SS9 and 15 kV accelerating voltage. Micron bar is 1 μ m. Sample prepared by fixation , critical point drying and metal coating.

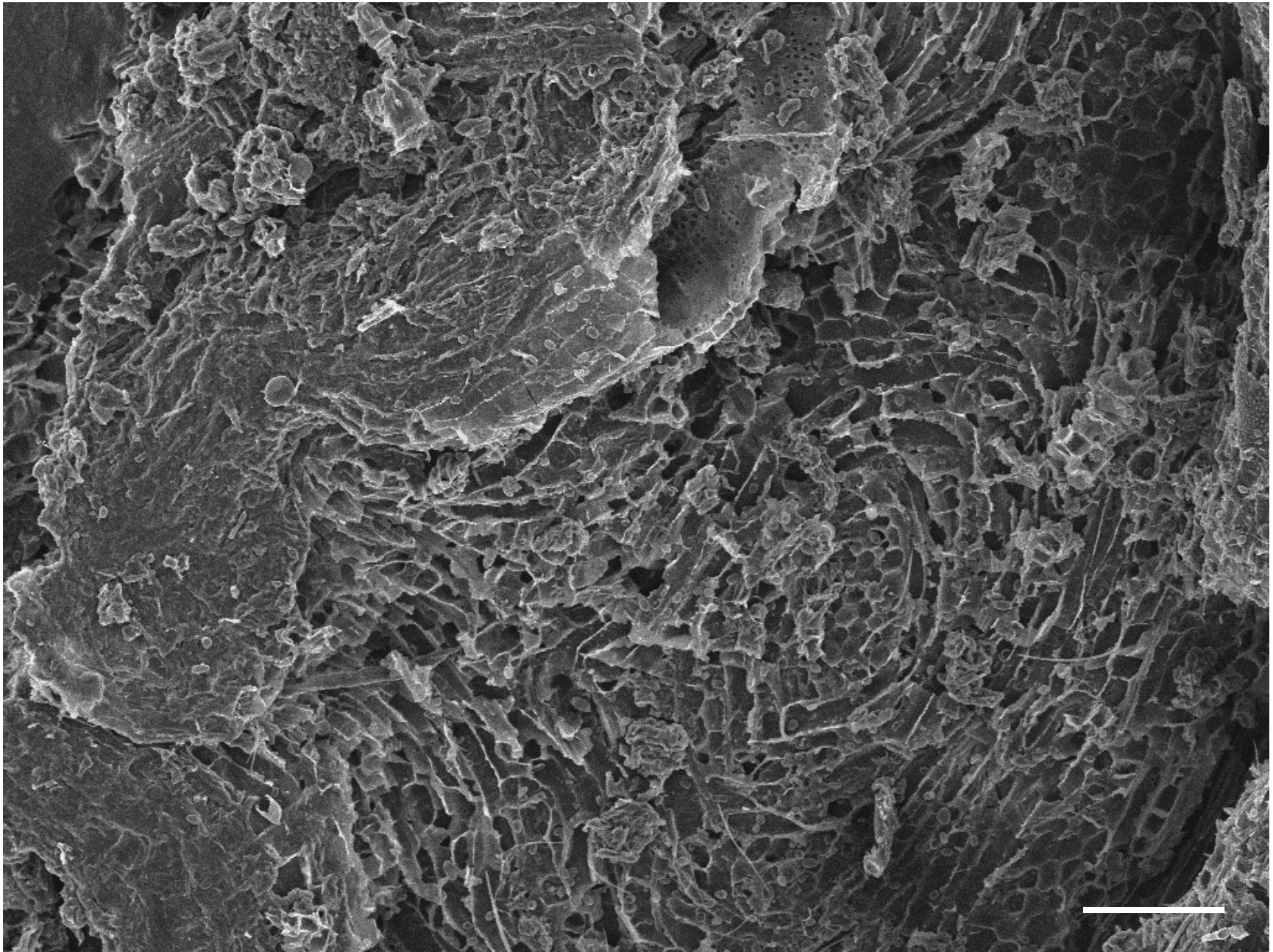


Figure 2. Scanning electron micrograph of the wood sample at a low mag of 150X, WD 29, OA 1, SS9 and 15 kV accelerating voltage. Micron bar is 100 μ m. Sample prepared by fixation , critical point drying and metal coating.